Hale, Rebecca E. and Gabrielle Graeter. "Sandy Bottom Conservation Plan – Abstract and Executive Summary." Asheville, NC: University of North Carolina Asheville, 2020.

The full report is available in print in Special Collections, UNC Asheville.

SANDY BOTTOM CONSERVATION PLAN

Published: January 13, 2020

ABSTRACT

The Sandy Bottom Conservation Plan provides the following: 1) a summary of the ecology, communities, rare habitats and species on site; 2) a history of ownership, management, surveys and research, and educational activities; and 3) an outline of conservation goals for conserving the future of Sandy Bottom and its rare habitat and unique species assemblage.

PARTNERS

University of North Carolina Asheville, North Carolina Wildlife Resources Commission, MountainTrue, North Carolina Natural Heritage Program, U.S. Fish and Wildlife Service, Southern Environmental Law Center, Defenders of Wildlife, Tangled Bank Conservation, LLC, National Park Service, National Parks Conservation Association, Long Branch Environmental Education Center

Compiled by
Gabrielle Graeter, Conservation Biologist/ Herpetologist, NC Wildlife Resources Commission
Rebecca E. Hale, Associate Professor of Biology, University of North Carolina Asheville

Executive Summary

Sandy Bottom is approximately 36 acres in the French Broad River floodplain in Asheville, North Carolina. The north end is bordered by the Blue Ridge Parkway and is National Park Service property. To the west and south is a neighborhood. To the east are Highway 191, a small privately-owned property, and the French Broad River. The entire property was purchased by H. M. "Ske" and Kitty Boniske in 1980. In 2005, 18.39 acres that had been purchased from the Boniskes by The Nature Conservancy were transferred to the University of North Carolina Asheville's Endowment Fund Board. Between 2005 and 2007, the Boniske family donated four parcels directly to the Endowment Fund Board, for a total of 30.58 acres. Four adjacent parcels (4.55 acres) were donated to Long Branch Environmental Education Center of Leicester, North Carolina.

By far, Sandy Bottom's greatest value is its biodiversity (Table 1). Most notably, there are 26 amphibian species (including 19 salamander species) and 18 reptile species present. Sandy Bottom likely has more salamanders than any site of similar size in North Carolina or in the Appalachian region. Both state and federal agencies tasked with biodiversity monitoring and management have a keen interest in Sandy Bottom and have been monitoring plant and animal communities there for decades. Sandy Bottom's uniqueness and high biodiversity stems from the site harboring a range of aquatic habitats that typically do not co-occur in such a small area – Appalachian swamp-forest bogs, ephemeral ponds, groundwater seeps, rainwater-fed streams, and upland forest.

In addition to Sandy Bottom's ecological importance, it holds immense educational value to the University of North Carolina Asheville and other organizations. For at least the last decade, faculty from the Biology Department and Environmental Studies Department have taken class field trips to the site to study its biodiversity, hydrology, and soils. Over this time, 11 distinct courses involving up to 300 students per year have studied at Sandy Bottom. In addition, faculty and student research has been conducted at the site resulting in more than 15 undergraduate theses.

The longevity of Sandy Bottom as a biodiversity hotspot is threatened at a number of scales. Locally, threats include invasion of non-native plant species, predation and habitat modification by subsidized predators, introduction of disease, loss of connectivity to regional metapopulations, and altered hydrology. Human activities that have direct, negative impacts include poaching of plant and animal species, damage due to recreational use, road run-off and road mortality, and development. Regionally, changes in climate likely will impact hydrology and seasonality at Sandy Bottom, affecting both flora and fauna.

The broad conservation goal for Sandy Bottom is to provide proper management and conservation of the ecology and biodiversity of the site, with a focus on rare species. To accomplish this, UNC Asheville researchers and partners in North Carolina state agencies will need to continue to monitor the status of sensitive populations at the site, as well as catalog the diversity of yet un-surveyed groups of plants, fungi, and animals. To sustain the site's biodiversity into the distant future, it may be necessary to improve connectivity of Sandy Bottom with nearby upland forest as well as with adjacent floodplain habitat along the French Broad River. This action may require altering hydrology and connectivity with adjacent sites to expand available wetland habitat. Accomplishing these goals likely requires facilitating stronger relationships with adjacent land owners and establishing more permanent funding for Sandy Bottom's long-term maintenance and improvement.

Table 1. Summary of species diversity and conservation status, by taxon, of species at Sandy Bottom.

Taxon	Number of Species	NC Wildlife Action Plan SCGN Status*	NC State Status†	US Status‡
Fungi	22			
Lichen	33			
Plants, non-woody				
Bryophytes	114		SR-P: 1; W: 2	
Clubmosses	3			
Ferns	10			
Sedges and Rushes	29			
Grasses	13		SR: 1	
Herbs	126			
Plants, woody				
Trees and Shrubs	55			
Vines	4			
Invertebrates				
Worms	1			
Mussels	1			
Crayfish	4	1	SR: 1	FSC: 1
Spiders	1			
Insects				
Butterflies	12			
Dragonflies/Damselflies	26			
Other Insects	2			
Vertebrates				
Fish	7			
Amphibians				
Frogs/Toads	7			
Salamanders	19	5	SC: 4	FSC: 2
Reptiles				
Lizards	2			
Snakes	9	1		
Turtles	9	4	T: 1; SC: 3	T(S/A): 1

Birds	61	2	SC: 2; SR: 2; W: 4	
Mammals				
Bats	8	5	E: 1; SR: 2; W: 2	E: 1
Other mammals	9			

*North Carolina Species of Greatest Conservation Need.

†NC Status: E, Endangered; T, Threatened; SC, Special Concern; SR, Significantly Rare; SR-P, Significantly Rare – Peripheral; W, Watchlist.

‡US Status: E, Endangered; T, Threatened; T(S/A), Threatened Due to Similarity of Appearance; FSC, Federal Species of Concern.